Amendments to the Claims

1. (**Currently Amended**) A method for lossless coding of image and video media, comprising:

splitting input image data into block portions;

for an individual one of the block portions, selecting one of multiple available differential pulse code modulation (DPCM) prediction modes to apply to the block portion ~~**that**~~ **based upon which DPCM prediction mode,** out of the available DPCM prediction modes, yields a closer to optimal two-sided, zero-biased symbol distribution of a run-length, Golomb-Rice entropy encoder;

applying the selected DPCM prediction mode to the block portion;

entropy encoding DPCM residuals of the block portion using run-length Golomb-Rice encoding; and

outputting the encoded DPCM residuals of the block portion in a bitstream.

2. (Original) The method of claim 1 further comprising:

converting the input image data into a YCoCg color space format.

3-4. (Canceled)

5. (Original) The method of claim 1 further comprising encoding the DPCM prediction mode and DPCM residuals with separate run-length, Golomb-Rice coding contexts.

6. (Previously Presented) The method of claim 1 further comprising:

determining whether application of the selected DPCM prediction mode to the block portion produces all zero valued DPCM residuals; and

if so, encoding the block portion without entropy encoding DPCM residuals of the block portion.

7. (Original) The method of claim 1 wherein the selecting the DPCM prediction mode comprises:

determining whether the DPCM prediction mode yielding the closer to optimal symbol distribution for entropy coding is sufficiently close to the optimal symbol distribution for entropy coding; and

if not sufficiently close, applying no DPCM to the macro-block before the entropy encoding.

8. (Original) The method of claim 1 wherein the DPCM prediction modes comprise modes designed to produce an optimal distribution for entropy coding for block portions whose image content is predominantly a horizontal major edge, a vertical major edge, ramp diagonal edges, bands, and banded horizontal ramps.

9. (Original) The method of claim 1 wherein the DPCM prediction modes comprise:

a first mode in which a pixel's value is subtracted from its left neighboring pixel;

a second mode in which a pixel's value is subtracted from its top neighboring pixel;

a third mode in which a pixel's value is subtracted from a minimum or maximum of its left and top neighboring pixels;

a fourth mode in which a pixel's value is subtracted from an average of its top and top right neighboring pixels;

a fifth mode in which a pixel's value is subtracted from its top-left neighboring pixel;

a sixth mode in which the difference between a pixel's top and top-left neighboring pixels is subtracted from its left neighboring pixel; and

a seventh mode in which a pixel's value is subtracted from an average of the pixel's left and top neighboring pixels.

10. (**Currently Amended**) A computer-implemented media system providing predictive lossless coding of image or video media content, the system comprising a computer comprising one or more computer-readable storage media and a processor, the computer-readable storage media containing instructions, which, when executed by the processor on the computer, cause the computer to perform the actions of:

a macro-block division process for separating input image data into macro-blocks;

a multi-mode differential pulse code modulation (DPCM) process operating on an individual macro-block of the input image data to choose one of multiple DPCM prediction modes ~~that~~ **based upon which one of the multiple DPCM prediction modes** produces a residual distribution for the macro-block to more closely match an optimal two-sided, zero-biased, run-length, Golomb-Rice (RLGR) entropy coding distribution, and applies the chosen DPCM prediction mode to the macro-block; and

an entropy coding process for performing a run-length, Golomb-Rice coding of the DPCM residuals of the macro-block.

11. (Previously Presented) The computer-implemented media system of claim 10 further comprising a color space conversion process for converting the input image data prior to a YCoCg color space format prior to coding.

12. (Previously Presented) The computer-implemented media system of claim 10 wherein the DPCM prediction modes comprise modes designed to produce distributions close to the optimal two-sided, zero-biased RLGR entropy coding distribution for macro-blocks whose image content is predominantly a horizontal major edge, a vertical major edge, ramp diagonal edges, bands, and banded horizontal ramps.

13. (Previously Presented) The computer-implemented media system of claim 10 wherein the DPCM prediction modes comprise:

a first mode in which a pixel's value is subtracted from its left neighboring pixel;

a second mode in which a pixel's value is subtracted from its top neighboring pixel;

a third mode in which a pixel's value is subtracted from a minimum or maximum of its left and top neighboring pixels;

a fourth mode in which a pixel's value is subtracted from an average of its top and top right neighboring pixels;

a fifth mode in which a pixel's value is subtracted from its top-left neighboring pixel;

a sixth mode in which the difference between a pixel's top and top-left neighboring pixels is subtracted from its left neighboring pixel; and

a seventh mode in which a pixel's value is subtracted from an average of the pixel's left and top neighboring pixels.

14. (**Currently Amended**) A computer-readable storage medium having computer-executable program instructions stored thereon, operative upon execution in a computer media processing system to perform a method of encoding image or video data, the method comprising:

converting image data to a YCoCg color space format;

splitting the image data into macro-blocks;

for a macro-block of the image data, determining **a DPCM prediction mode based upon** which **DPCM prediction mode** from a group of available DPCM prediction modes produces residuals closest to an optimal two-sided, zero-biased distribution for RLGR coding;

if such determined DPCM prediction mode produces residuals whose distribution is sufficiently close to the two-sided, zero-biased optimal distribution, applying the DPCM prediction mode to the macro-block; and

RLGR entropy encoding the residuals of the macro-block.

15. (Previously Presented) The computer-readable storage medium of claim 14 wherein the method further comprises:

determining whether application of the determined DPCM prediction mode to the macro-block produces flat residuals; and

if so, encoding the macro-block without the RLGR entropy encoding the residuals of such flat macro-block.

16. (Original) The computer-readable storage medium of claim 15 wherein the method further comprises:

RLGR entropy encoding the macro-block mode indication using a separate RLGR coding context than for RLGR entropy encoding the residuals.

17. (Previously Presented) The computer-readable storage medium of claim 15 wherein the method further comprises:

determining whether the DPCM prediction mode producing a residual distribution closest to the optimal two-sided, zero-biased distribution produces a residual distribution sufficiently close to the optimal two-sided, zero-biased distribution; and

if not sufficiently close, RLGR entropy encoding the macro-block without applying the DPCM prediction mode to the macro-block.

18. (**Currently Amended**) A method of decoding predictive losslessly coded data of an image or video, comprising:

RLGR entropy decoding a macro-block mode, a DPCM prediction mode and DPCM residuals for each of a plurality of macro-blocks using separate RLGR coding contexts;

where the macro-block mode of a macro-block is a flat macro-block mode, decoding the macro-block's pixels using a DPCM demodulation that is an inverse of the RLGR-decoded DPCM prediction mode of all zero residuals;

otherwise, where the DPCM prediction mode of the macro-block is a no DPCM prediction mode because application of possible DPCM prediction modes did not yield a symbol distribution for RLGR entropy encoding sufficiently close to an optimal symbol distribution for RLGR entropy encoding such that the symbol distribution meets a sufficiency threshold, decoding the macro-block's pixels without DPCM demodulation;

otherwise, de-modulating the RLGR-decoded DPCM residuals using a DPCM demodulation that is an inverse of the RLGR-decoded DPCM prediction mode **wherein the DPCM prediction mode was selected during encoding based upon which DPCM prediction mode from a group of available DPCM prediction modes produced residuals closest to an optimal two-sided, zero-biased distribution for RLGR coding**; and

assembling the macro-blocks to form a decoded image data.

19. (Original) The method of claim 18 comprising:

converting the decoded image data from a YCoCg color space format to a displayable color space format.

20. (**Currently Amended**) A predictive-lossless coded image or video decoder, comprising:

a run-length Golomb-Rice (RLGR) entropy decoder operating to decode RLGR-encoded DPCM residuals and DPCM prediction mode of a macro-block;

a DPCM demodulator for applying an inverse of the DPCM prediction mode to the DPCM residuals if the macro-block was encoded using a DPCM prediction mode **wherein the DPCM prediction mode was selected during encoding based upon which DPCM prediction mode from a group of available DPCM prediction modes produced residuals closest to an optimal two-sided, zero-biased distribution for RLGR entropy encoding**;

otherwise, where the macro-block was not encoded using a DPCM prediction mode because application of possible DPCM prediction modes did not yield a symbol distribution for RLGR entropy encoding sufficiently close to an optimal **two-sided, zero-biased** symbol distribution for RLGR entropy encoding such that the symbol distribution meets a sufficiency threshold, decoding the macro-block without DPCM demodulation; and

a macro-block reassembler for assembling the macro-block with other decoded macro-blocks to form data of a reconstructed image.

21. (Original) The predictive-lossless coded image or video decoder of claim 20, comprising:

an inverse YCoCg converter for converting the reconstructed image from a YCoCg color space to a color space suited for displaying the image.